Catalogue of American Amphibians and Reptiles.

HIGHTON, RICHARD. 1986. *Plethodon serratus.*

Plethodon serratus Grobman
Southern redback salamander

Plethodon cinereus serratus Grobman, 1944:306. Type-locality, "Rich Mountain, Polk County, Arkansas, at an altitude of 2500 feet." Holotype, Field Museum of Natural History (FMNH) 39464, an adult female collected on 23 March 1938, by Karl P. Schmidt and C. M. Barber (examined by author).

Plethodon cinereus polycentratus Highton and Grobman, 1956: 185. Type-locality, "2 miles northeast of Palmetto, Fulton County, Georgia." Holotype, Florida State Museum (UF) 8376, an adult male collected on 2 February 1954 by Albert H. Highton and Richard Highton.

Plethodon serratus: Highton and Webster, 1976:40.

• CONTENT. No subspecies are recognized.

• DEFINITION. *Plethodon serratus* is a member of the *P. cinereus* group of eastern *Plethodon* as defined morphologically by Highton (1962) and biochemically by Highton and Larson (1979). It often occurs in two color morphs, the usually more common striped form with a red dorsal stripe and a uniformly brown morph (sometimes with small dorsal and lateral red spots). The modal number of trunk vertebrae is usually 19 in Missouri, 20 in the Ouachita Mountains of Arkansas and Oklahoma, in central Louisiana and in the southern Appalachian Mountains, and 21 or 22 in Georgia and Alabama. Adults range from 39–51 mm (body) and 80–104 mm (total) length. The Ouachita Mountain and central Louisiana isolates have in the striped morph a red stripe with serrated edges, but the other isolates have the serrated edges reduced or missing so that the stripe has straighter edges. The belly is mottled with black and white pigment but may have some red pigment, especially near the limb insertions. The sides are brown with large white spots.

• DESCRIPTIONS. Grobman (1944) and Highton and Grobman (1956) described specimens from Arkansas and Georgia respectively. Johnson (1977, Missouri), Mount (1975, Alabama) and Martof et al. (1980, North Carolina) described individuals of *P. serratus* from their respective isolates.

• ILLUSTRATIONS. Black and white photographs are in Anonymous (1974, Arkansas), Mount (1975, Alabama), and Johnson (1977, Missouri). Color photographs are in Behler and King (1979) and Martof et al. (1980). Drawings of the serrated dorsal stripe of the Arkansas-Oklahoma variant are in Grobman (1944), Conant (1975) and Smith (1978), the last in color. The specimen illustrated by Huheey and Stupka (1967) is not from the southern Appalachian Mountains and is a *P. cinereus*, not a *P. serratus*.

• DISTRIBUTION. The range of *P. serratus* is subdivided into four geographic isolates: the Salem Plateau of southeastern Missouri; the Ouachita Mountains of Arkansas and Oklahoma; central Louisiana; and the Piedmont of eastern Alabama and western Georgia northeast through the Blue Ridge Mountains of Tennessee and North Carolina to the French Broad River. An erroneous record for Lauderdale County, Alabama in Mount and Folkerts (1968) is based on a *P. dorsalis*. The specimen recorded for Cherokee County, Oklahoma in Bragg and Hudson (1951) and Bragg (1955) is correctly identified but it likely has erroneous locality data. Highton (1962) doubted that the record of Sanders and Smith (1949) from the Coastal Plain of Nacogdoches County, Texas represented a natural occurrence, but the discovery of the species in the Coastal Plain of Louisiana by Keiser and Conzelmann (1969), only 150 km east of the Texas record, makes it more likely that the record is valid.

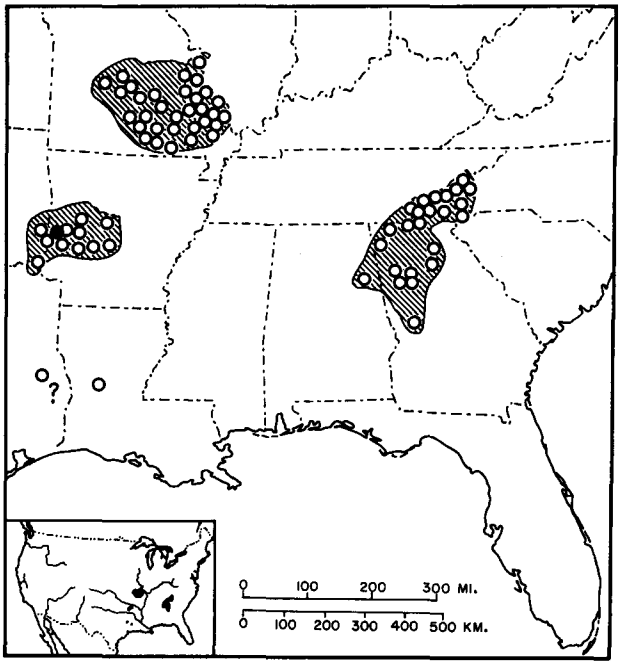
All published range maps show the Alabama-Georgia Piedmont populations isolated from those in the southern Appalachian Mountains. New material from geographically intermediate localities, shown on the accompanying map, indicates that the ranges of populations in these two regions are probably continuous.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Highton and Grobman (1956), Highton (1960, 1962) and Highton and Webster (1976) described geographic variation in the number of trunk vertebrae in populations now assigned to *P. serratus*. Other geographically variable morphological characters are listed by Highton and Webster (1976). Thurow (1956, 1957) discussed its distribution, characteristics and taxonomy. Smith (1963) compared characteristics of populations of this species (then considered *P. cinereus*). Thurow (1968) studied morphometrics, pigmentation and relationships. *P. serratus* was first recognized as a species distinct from *P. cinereus* by Highton and Webster (1976) on the basis of a large amount of genetic divergence from the latter species as determined by an electrophoretic analysis of 24 protein loci. Wake (1981) discussed the separation of *P. serratus* and *P. cinereus* into separate taxonomic species on the basis of electrophoretic genetic data. Highton and Larson (1979) compared electrophoretic variation in 29 proteins of *P. serratus* with that in all 25 other species of *Plethodon* recognized at that time. Its albumin was compared immunologically to several other species of *Plethodon* in Maxson et al. (1979) and Maxson et al. (1984). The nucleolar organizer of oocytes of Georgia animals was examined by Kezer and Macgregor (1973). DNA sequence homologies of Georgia specimens to cRNA of *P. cinereus* were studied using DNA/cRNA hybridization techniques by Macgregor et al. (1973). Chromosomal morphology, genome size and DNA sequence homologies of Missouri and Georgia individuals to eastern and western species of *Plethodon* were studied by Mizuno and Macgregor (1974). Larson et al. (1984) estimated gene flow among populations.

The distribution, life history, habits and habitat for populations from Missouri is in Johnson (1977), from Alabama in Mount (1975), and from North Carolina in Martof et al. (1980). Camp and Bozeman (1981) reported on food habits. Bragg (1952, 1955) and Bragg and Hudson (1951) discussed its distribution in Oklahoma and Dowling (1956, 1957) its distribution in Arkansas. Brodie et al. (1974) studied immobility as a defense mechanism. Keiser and Conzelmann (1969) described its distribution and habitat in Louisiana. Spotila (1972) studied the role of temperature and water in the ecology of the Ouachita Mountain isolate. Thurow (1976) studied aggressive behavior. King (1939) and Highton (1971) studied the distribution of southern Appalachian populations and compared altitudinal distribution with that of *P. dorsalis* in Tennessee. Hairston (1981, 1985) studied the ecological interactions of a North Carolina population with *P. jordani* and *P. teyahalee.*

• ETYMOLOGY. The name *serratus* refers to the condition of serrated or saw-tooth edges of the dorsal stipe, characteristic primarily of the Ouachita Mountain and central Louisiana isolates of the species.



Map. The solid circle shows the type-locality. Open circles indicate other records.

I thank the National Science Foundation for financial support of my research on *P. serratus* (Grant DEB-81-17983).

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